Your Name

Mrs. T

9/17/2020

Notes

1.4
Solving Absolute Value Equations

Oct 30-9:25 PM

Objective: To be able to solve absolute value equations. To be able to recognize when there is not a solution. To be able to write equations for situations and from graphs.

Virtue/Skill: We will be using our understanding of absolute value equations to learn about inequalities. Absolute value inequalities help us to find and define limits in calculus.

Oct 30-9:31 PM

Absolute Value

$|x|$

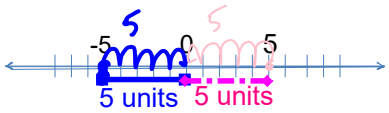
The value of a number is decided by its distance from 0

Sooo... Always a positive value

ex. whether or not I drive forward or backwards, I am still driving 500 ft.

ex. $|-5| = 5$

$|5| = 5$



5^2

25

Evaluating

Ask: How far is this from 0?

Tip: take the positive value

ex. $|-22| = ?$ 22 $|156| = ?$ 156 $|-33+22| = ?$ $|-11|$ 11 simplify inside first

Incorrect

$|-33+22|$

No $33 + 22$

55 X

So what about this?

$|x| = 4$

X could be 4

or

X could be -4

Sep 5-10:33 AM

Absolute Value Equations

The distance an expression is from 0

Solutions are 2 number answers, seen as single points on a number line

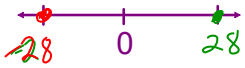
$|5x - 2| = 28$ the expression $5x - 2$ is 28 spaces from 0

Case 1: The value inside the absolute value symbols is **negative**

Case 2: The value inside the absolute value symbols is **positive**

ex.1 $|y| = 28$

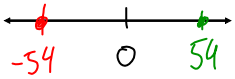
$y = -28$ or $y = 28$



ex. 2 $|x| = 54$

Case 1 $x = -54$

Case 2 $x = 54$



Nov 8-2:44 PM

$|x-7| = 3$

* to get rid of bars *

Choice 1

$x-7 = -3$

$+7 \quad +7$

$x = 4$

Choice 2

$x-7 = 3$

$+7 \quad +7$

$= 10$ ✗

AV Equations with * / expressions inside

$|4x| = 28$

Case 1

$\frac{4x}{4} = \frac{-28}{4}$

$x = -7$

Case 2

$\frac{4x}{4} = \frac{28}{4}$

$x = 7$

Check

$|4(-7)| = 28$

$|-28| = 28$

$28 = 28$ ✓

$|4(7)| = 28$

$|28| = 28$

$28 = 28$ ✓

AV Equations with + - inside

ex. 2 $|x - 2| = 28$

Case 1

$x - 2 = -28$

$+2 \quad +2$

$x = -26$

Case 2

$x - 2 = 28$

$+2 \quad +2$

$x = 30$